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Does Agricultural Performance Contribute to Rural Poverty Reduction in Indonesia?

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Abstract

Agriculture is the primary sector in many provinces in Indonesia. In fact, most of the rural communities work in the agricultural sector. Nevertheless, the poverty level in rural areas remains high. Therefore, this study was aimed at investigating the performance of the agricultural sector in reducing the rural poverty level in Indonesia, and to investigate factors that contribute as a determinant in reducing rural poverty level in Indonesia. This study was significant, considering that the result was to contribute to government policy evaluation in the agricultural sector, especially in reducing poverty in rural areas. This study used quantitative analysis through multiple regressions with data panel from 2014 to 2017 from 33 provinces in Indonesia. This study revealed that the increase of agricultural sector share and the widening of the income distribution had caused an increase in poor people in a rural area. This finding also revealed that the income distribution gap was a determinant to the severity of rural poverty. The growth in the agricultural sector to contribute toward the economy could reduce rural poverty level in Indonesia. Meanwhile, agricultural financing, economic growth, inflation, and the farmer exchange rate had not significantly contributed to reducing the poverty level.

Key words : Agricultural Sector, Rural Poverty

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INTRODUCTION

Contribution of the agricultural sector in Indonesia toward national economic development is no longer dominant. At the same time, the contribution of the processing industry is becoming more significant. This signifies the economic transformation process in Indonesia. The shifting of economic structure from the primary sector to the secondary/industrial sector is happening (Chenery and Syrquin, 1975). The contribution of primary sectors, especially agriculture is about 13.92 percent, whereas the manufacturing industry contribution is about 20.26 percent. Regardless that this shift is yet followed by the shift of labor structure, as labors in the agricultural sector are still dominant in several provinces by on average above 30 percent. In fact, there are three provinces (Papua, Kalimantan Barat, and Sulawesi Barat) whose agricultural labor structure is above 50 percent, as presented in Figure 1. This is what Anderson and Pangestu (1995), an economic transformation that was happening in Indonesia was a quasi-transformation. This is because of the decrease in the agricultural sector contribution is yet followed by a decrease in labor in the agricultural sector. The workers in the agricultural sector are high as the absorption of workers in other sectors is low. This fact is strengthened by recent findings on structural changes by Ryandiansyah and Azis (2018) that structural transformation in Indonesia during the period of 1998-2014 was yet able to positively contribute to the economy as a whole.

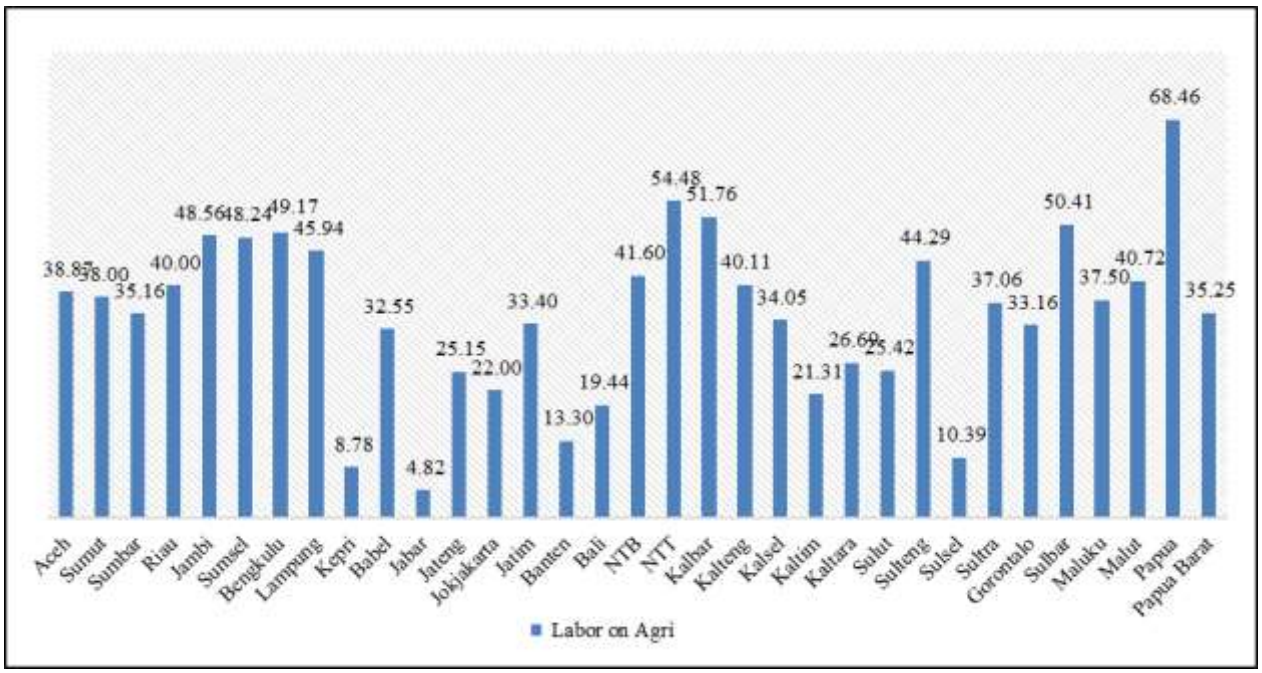

Figure 1. Labor's Proportion per Province According to Works in the Agricultural Sector (Percent)

Source: Data Processing Result, 2019

The weak shift of labor structure has led to a labor surplus in the agricultural sector, at the same time; it is suspected that agricultural land ownership per family in Indonesia is less than 0.5 ha. These data ensure that the Marginal Productivity Labor (MPL) in the agricultural sector is highly inefficient, thus, the influence toward economic growth is

insignificant, and the development is moving slower (Zulkhibri, Naiya, and Ghazali, 2015). The impact is that the labor income in the agricultural sector is very low. Dewbre, Cervantes-Godoy, Sorescu (2011) described that in general non-agricultural economic activities have more extensive multiplier effects that can quickly reduce poverty compared to the non-processing agricultural sector. Nevertheless, the agricultural sector should not be neglected. Therefore, in this context, there is a need to reduce the number of workers in the agricultural sector by facilitating a migration of labors to work in the non-agricultural sector. The reduction of agricultural workers through migration can increase their income. This income can be compensated through remittance to be invested back into the agricultural sector (Huy and Nonneman, 2016; Zhu and Luo, 2010: Lokshin, Osmolovski, and Glinskaya, 2010).

Low MPL in the agricultural sector had affected their inability to fulfill their needs due to their low income, thus, the poverty level in rural Indonesia is high. For instance, in 2017, the rural poverty rate in Indonesia was 13.20 %, whereas the urban poverty level was only 7.26 %. Based on these data, it could be assumed that the state is still relying on the agricultural sector (primary sector) as the main contributor to economic development, which then leads to a high poverty rate. According to Arham and Naue (2015), the domination of agricultural sector in economic development in several regions and the number of poor people working in agricultural sector compared to other sectors were due to: a) The weak shift of economic structure (dominated by non-processing agricultural sector), thus, minimizing the multiplier effect, b) farmers and agricultural workers education were low, thus, their productivity was also low, c) the difficulty to access finance, and d) Low and fluctuating farmers exchange rate.

The number of workforce in the agricultural sector and the high rate of rural poverty rate has pushed the government to prioritize development in the agricultural sector. The government of President Joko Widodo and Vice President Jusuf Kalla allocated a rather large public expenditure for the agricultural sector, a second highest spending after transportation sector in central government spending in the economic sector, (See Figure 2).

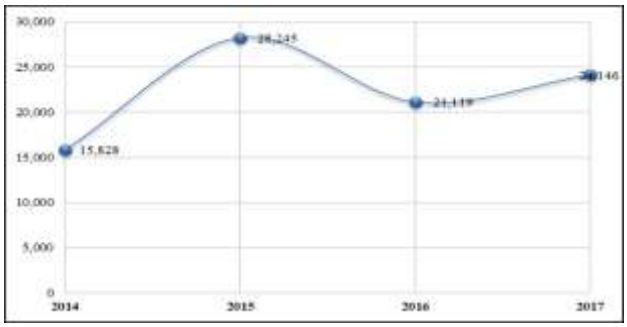

Figure 2. Development of Agricultural Sector Expenditure in the State Budget for the Period of 2014-2017 (Billion).

Source: Data Processing Result, 2019.

In 2014 the public expenditure for the agricultural sector was IDR. 15.828 trillion. In 2015 the expenditure for agricultural sector almost doubled to IDR 28.245 trillion, while in 2016 the public expenditure for this sector decreased to IDR 21.119 trillion, and in 2017, it increased to IDR. 24.146 trillion. Financing for the agricultural sector, either for research, extension works, or physical assistance such as fertilizer subsidy, production facilities, irrigation, or village infrastructure development is strongly tied to poverty reduction (Fan and Zhang, 2008; Achyar and Panennungi, 2010; Burney and Naylor, 2012). Village road investment is highly beneficial for the poor, even in some cases; its benefits are proportionally higher for the poor than for the non-poor people. The existence of village road

significantly reduce poverty through higher agricultural production, lower input, and transportation costs, and a higher price for the agricultural products in the village market (Bakt and Koolwal, 2009).

For developing countries, the agricultural sector is still the primary sector that contributes to economic development. In addition to a trade commodity, agricultural products also contribute to the fulfillment of basic human needs. Therefore, the market share for agricultural products is still needed. This is even more true for Indonesia, whose more than half of its 34 provinces are relying on the agricultural sector as the contributor to the regional gross domestic product (RGDP). According to Hermawan (2012), the agricultural sector plays an essential role in rural poverty reduction rather than urban poverty reduction. Even more, finding by Jamal, Sani, Ibrahim, and Kolo (2018) in Nigeria, the primary sector (agriculture) was rather effective to reduce poverty, either directly or indirectly. Meanwhile, Christiaensen, Demery, and Kuhl (2011) carried out a cross-countries empiric study, which showed that agricultural sector significantly more effective than non-agricultural sector to reduce poverty in developing countries.

The problem in Indonesia today is agricultural land is becoming smaller due to massive land conversion. Most of the lands are now owned by mining and plantation industry, as well as many urban communities are now occupying the land in rural areas. At the same time, the labor absorption for non-agricultural sectors is slow, whereas workers in the agricultural sector are high. Thus, the income for the agricultural sector to become low. The impact is the income gap between rural and urban community, or among the rural community themselves. The significant gap income in the rural area will make it hard for poverty reduction, regardless of the increasing economic growth (Kang and Imai, 2012; Iniguez-Montiel, 2014; Fosu, 2017).

Within the global uncertainty, highly volatile price of a commodity that can destabilize Indonesian economic growth are things that will further interfere with the efforts to reduce gap within the rural community as well as spatial gap. Regardless to these uncertainties, the Indonesian economy is still able to grow in the average of 5 percent, even though from 2015 to 2017 the economic growth was depressed due to the decreasing price of a commodity. The slowness of Indonesian economic growth had no significant implication on the poverty rate, which reduced from 10.96 percent in 2014 to 10.12 percent in 2017. Therefore, the emerging question is, whether or not this current economic growth affects poverty reduction. In fact, data showed that economic growth in some provinces in Indonesia is pro-growth but not pro-poor, as seen in Figure 3. The case is different in sectoral growth, where agricultural sector in a rural area is somewhat useful to reduce poverty in Indonesia and in some other countries (Suryahadi, Suryadarma, and Sudarno, 2006; Sumarto Kadir and Rizki, 2016; Loayza and Raddatz, 2010; Surjahadi, Hadiwidjaja and Sumarto, 2012).

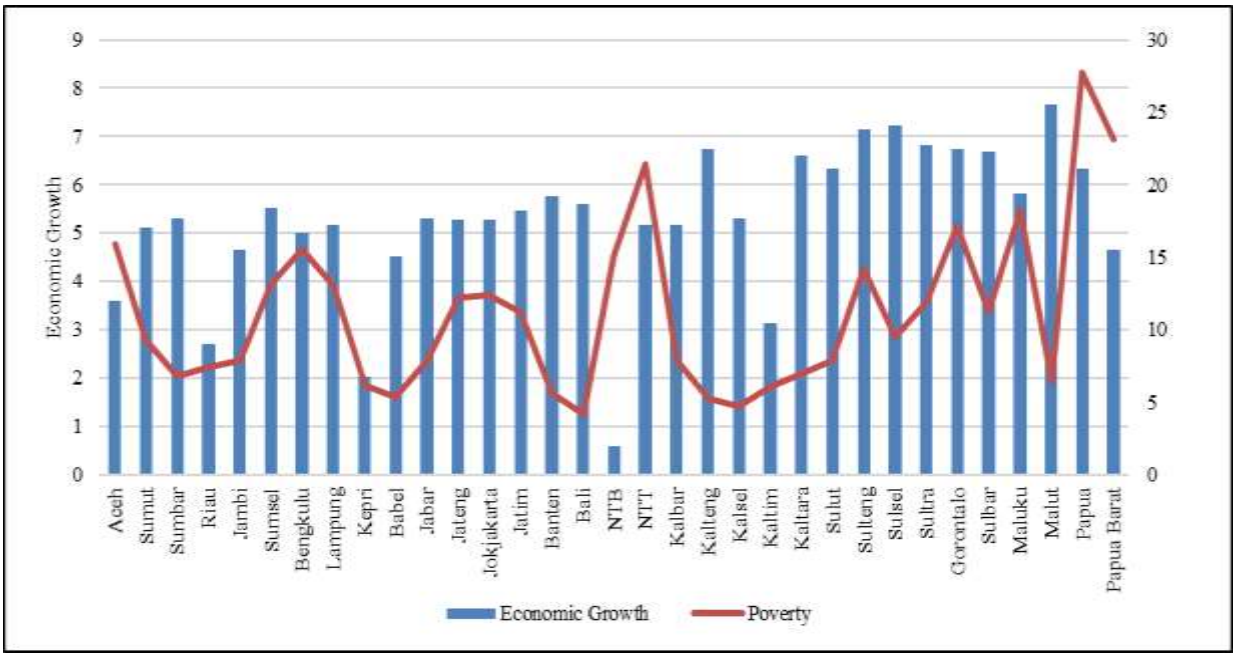

Figure 3. Growth Comparison among Economic Growth and Poverty Rate per Province in Indonesia 2017

Source: Data Processing Result, 2019.

Agricultural growth in the village level has important role in reducing poverty, whereas, economic growth, in general, cannot be relied on as the motor to reduce the poverty rate. The growth of the agricultural sector in the rural area along with the growth of the service sector in the urban area would shift some of the workers from the agricultural sector. Hence, the expected effect is the increase of community's welfare. Nevertheless, the confounding variables, such as inflation needs to be controlled by the government as poor rural households are more vulnerable toward the economic turmoil, especially inflation (Sugema, Irawan, Adipuwanto, Holis and Bakhtiar, 2010; Talukdar, 2012; Fujii, 2013; Pratikto, Ikhsan, and Mahi, 2015).

Inflation from food is very important to be managed, therefore, the government established a Local Inflation Control Team, which involved various elements. For the last five years, inflation has been well controlled. Nevertheless, inflation control is not the only effort to improve farmers' welfare. Commodity price needs to be intervened by the government, thus, farmers have purchasing power. One of important indicators to determine farmers' welfare level is Farmers' Exchange Rate (throughout this paper will be referred to as NTP). NTP is calculated from the ratio of the price received by farmers toward the price paid by farmers. This simple concept describes the farmers' purchasing power, which in turn will have an impact on the decrease of poverty rate (Setyowaty, Sasongko, and Noor, 2018). The problem is that NTP highly fluctuates each year, and some provinces in Indonesia have low NTP. At the same time, these provinces rely on income from the agricultural sector. Referring to this phenomenon, that the general performance of the agricultural sector is improving, however, it has yet significantly contributed to the reduction of rural poverty rate, where the rural poverty rate reduction is slowing annually.

From the above previous studies and empirical data, this study aims to determine the performance of the agricultural sector in reducing the poverty rate in rural areas of

Indonesia as well as the factors contributing to the poverty reduction. It is due to the fact that agriculture has become the basic sector in most provinces, yet the poverty in rural areas still falls under a high rate.

METHOD

Based on the objectives set above, this was a combination of quantitative and qualitative methods to investigate the influence of the facts within the phenomenon to systematically, accurately, and factually described them, such as the correlation between the performance of the agricultural sector and the rural poverty in Indonesia. The objects of this study were agricultural public sector spending, agricultural sector share, rural gap, economic growth, agricultural growth, inflation and NTP for the period of 2014 – 2017 from 33 provinces in Indonesia. Therefore, to analyze the influence of agricultural sector performance toward rural poverty in Indonesia, data panel regression through fixed effect was used. This method was selected due to the fact of heterogeneity among provinces and that conventionally, the fix effect method was determined using the Hausmann test. The data were secondary data obtained through library research from Central Statistical Bureau and Ministry of Finance, as well as from the computerized method.

To find out the influence among variables in this study, the econometric analysis was carried out through a panel data regression model. The empirical model for agricultural sector performance and poverty used the model developed by Ahluwalia (2007), which has been modified accordingly. The model is described as follow:

$$Poverty_{it} = \delta_0 + \delta_1 LnAgriExp_{it} + \delta_2 ShareAgri_{it} + \delta_3 IneqRural_{it} + GrAgri_{it} + \delta_6 Inf_{it} + \delta_7 FER_{it} + \varepsilon_{it}$$

Notes:

Poverty	= Percentage of poverty rate in provincial level (Percentage)
LnAgri Exp	= Agricultural Public Sector Spending in each province (Rupiah)
ShareAgri	= Agricultural Sector shares in each province (Percentage)
IneqRural	= Rural gap in each province (Percentage)
Growth	= Level of economic growth (Percentage)
GrowthAgri	= Agricultural Growth in provincial level (Percentage)
Inf	= inflation level in each province (Percentage)
FER	= Farmers Exchange Rate in each province (Rupiah)
i	= Unit/provincial unit
t	= time period (t= 1, 2, 3 and 4)
ε	= Error term

Utilization of AgriExp, SharAgri, IneqRural, Growth, GrowtAgri, Inf and FER had a strong foundation, both theoretically and based on previous empirical studies as summarized in Table 1 below

Table 1. Description and Hypothesis for Each Variable

Variable	Description	Hypothesis
AgriExp	Government expenditure in the agricultural sector based on the result of a study from Susilastuti (2017).	The higher the government expenditure allocated for the agricultural sector, rural poverty tends to reduce
ShareAgri	Montalvo and Ravallion (2010) described the primary sector (mainly agriculture) had been the main motor for poverty reduction.	When contribution in agricultural sector increase, it would reduce the rural poverty level
IneqRural	The significant reduction of poverty rate happened in regions whose gaps are low, and similarly, small poverty reduction happened in regions with a big gap. This variable is selected based on the study of Nguyen, Ngoc, and Van der Weide (2010).	The higher the income distribution gap in a region, the more likely for poverty to increase
Growth	Economic growth generally is an active contributor to the poverty reduction in developing countries (Cervantes-Godoy and Dewbre, 2010; Cao, Wang and Wang, 2009; Sriyana, 2018),	The higher the economic growth, it would strengthen the rural poverty reduction rate
GrowthAgri	The decrease of the rural poverty rate is strongly linked with the growth in the agricultural sector, which supported by labors' productivity. This is based on the study from de Janvry and Sadoulet (2010)	When agricultural sector experienced growth each year, it would affect the reduction of rural poverty rate in Indonesia.
Inf	The inflation rate is selected based on the study from Son and Kakwani (2009); Supriyadi and Kausar (2017)	Uncontrollable inflation can accelerate the increase of rural poverty rate.
FER	NTP is calculated from the ratio of the price accepted by the farmers toward the price paid by the farmers. This concept simply describes the purchasing power of farmers. Thus, it will have an impact on the poverty rate reduction. This variable is selected based on the study from Setyowaty, Sasongko, and Noor (2018).	Exchange rate of a farmer can decrease rural poverty.

Source: Data Processed

RESULTS AND DISCUSSION

There is a steady increase in provinces focusing on the agricultural sector, which makes it clear that there are 18 provinces are based on agriculture out of 33 researched provinces (20 %). The rest are non-agricultural based provinces, as seen in Figure 4 (red line).

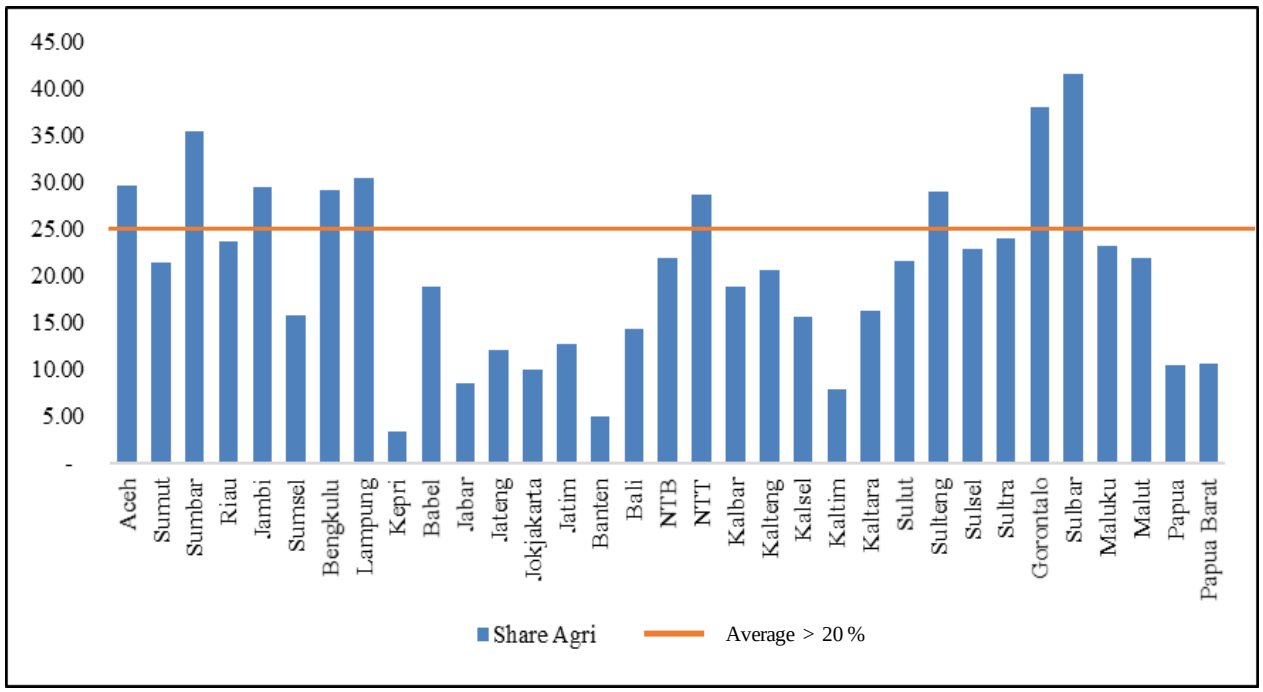

Figure 4. Agricultural Sector in Indonesian Provinces, 2017
Source: Data Processing Result, 2019.

Non-agricultural provinces are not necessarily based on the industrial sector, which signifies the economic transformation process in those provinces. Some of these non-agricultural base provinces are mining base provinces, which is also the primary sector, such as Sumatera Selatan, Kalimantan Selatan, Papua Barat, Papua, and Kalimantan Timur. Only provinces in Java are provinces that are based on trades and processing industry sectors. Riau province is based on manufacture, Bali, and Jogjakarta provinces based on the service sector. The figure above also clearly describes that several provinces cumulatively shape the economy in the region, such as Papua and Papua Barat, whose agricultural sector contribution are below 20 percent. The low contribution of the agricultural sector in these two provinces was assumed that the non-agricultural sectors are developing and thus ease the poverty reduction problems in the rural area.

The increasing contribution of non-agricultural sectors happens along with the shift of labor structure into more productive sectors. Nevertheless, in reality, the agricultural sector workers in Papua province were 68.46 percent and in Papua Barat was 35.25 percent. The increasing of non-agricultural sectors in Papua and Papua Barat did not make automatically able to reduce poverty. In fact, nationally, these two provinces have a high poverty rate.

The increasing contribution of non-agricultural sectors in Papua and Papua Barat are more influenced by the mining sector, where this sector is industrial sector whose derivatives are more capital intensive. Thus, the impact on welfare improvement in the mining area is usually an anomaly. The existence of abundant natural resources does not necessarily increase the welfare of the local community; the

needs of highly skilled workers often drive this sector to hire workers from outside the provinces.

The calculated factors for the first model are a public expenditure in the agricultural sector, agricultural sector share, rural gap, economic growth, agricultural sector growth. However, we considered that there are essential factors that contribute to poverty such as, inflation and Farmers Exchange Rate, thus, we calculated the second model. Based on the simultaneous test (F test), it showed that all performance indicators in the agricultural sector influence rural poverty. Nevertheless, partially (t-test) only agricultural sector share, rural gap, and agricultural sector growth whose influence are significant. The adjusted coefficient value is 99.23 percent and is able to describe the proposed model. In detail, the result of this calculation is presented in Table 2.

Table 2. Summary of Calculation Result of Rural Poverty

Variabel	Coefficient	Std. Error	t-Statistic
RURALPOV?	-	-	-
C	13.91394	3.958765	3.514717
LOG(EXPAGRI?)	-0.107501	0.151326	-0.710395
SHAREAGRI?	0.052756	0.031745	1.661870*
INEQRURAL?	5.860361	1.223398	4.790232***
GROWTH?	0.017413	0.035500	0.490502
AGRIGROWTH?	-0.050906	0.018337	-2.776120**
INFLASI?	-0.007726	0.018025	-0.428609
NTP?	-0.002083	0.004927	-0.422652
Adj. R-Squared	*0.992366*		
F – Stat	*437.6317*		
DW- Stat	*2.376004*		

Source: Data Processing Result (2019)
Significant *) 10 %, **) 5 % dan ***) 1 %

The estimation result of public expenditure for agricultural sector variable is not significantly influenced the rural poverty reduction rate. Therefore, allocation of budget for the agricultural sector, which increase annually, both from State Budget and from Local Budget, are yet able to improve rural poverty condition in Indonesia. This finding is in contrary to the finding by Susilastuti (2017), where she found that government expenditure for agriculture sector significantly reduce poverty in Indonesia. This different result is suspected due to the present study that was more focused on rural poverty and did not calculate the overall poverty. According to Mogues (2011), the minimum effect of public expenditure in the agricultural sector to reduce rural poverty is due to the disharmony of public expenditure and productivity in this sector. Thus, financing in the agricultural sector on itself does not reduce the poverty rate. Instead, the productivity of labor in the agricultural sector needs to be increased. Another cause of the minimal effect of public expenditure in the agricultural sector toward poverty reduction in a rural areas is that funding or assistance to agricultural activities are not well targeted.

The requirement for production input assistance in agricultural sector stipulates that

the beneficiaries should have lands; meanwhile, most of the farmers in various regions are only workers and not landowners. Therefore, financing in the agricultural sector to provide assistance needs target improvement, as agricultural sector stays as basis sector for more than half of provinces in Indonesia have agricultural sector share of more than 20 percent (See Figure 4).

Indonesian exports from the commodity sector are high, and in general, provinces outside of Java are relying on the agricultural sector to support their economy. Montalvo and Ravallion (2010) described that the primary sector (mainly agriculture) had become the main motor in poverty reduction. However, as seen in Table 1, the contribution of the agricultural sector has a positive and significant influence on rural poverty. It means that each increase of agricultural sector contribution (Share) in regional economic development would increase rural poverty, and in reverse, the decrease of agricultural sector share would also decrease the rural poverty. The trend between agricultural sector share and rural poverty is presented in Figure 5 below.

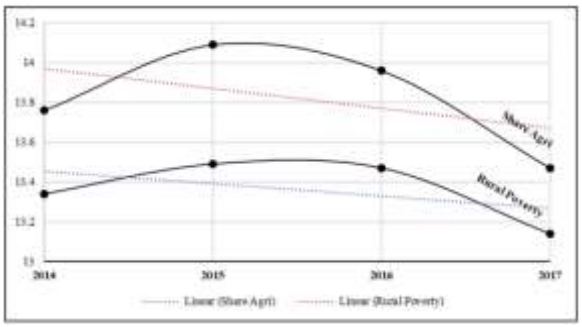

Figure 5. Trend of Agricultural Sector Share and Rural Poverty in Indonesia, 2017
Source: Data Processing Result, 2019.

This condition emerges due to the agricultural sector that is in general ineffective to solve poverty problems, including reducing gaps, compared to other non-agricultural sectors (Cuong, 2010). Kadir and Riski (2016) suggested that agricultural sector drive in growth would not improve rural poverty condition. Hence, the government needs to develop the non-agricultural sector in the rural area as efforts to reduce rural poverty in Indonesia. The challenge, according to Flachsbarth, Schotte, Lay, and Garrido (2018), was on the increase of income and establishment of non-agricultural jobs that are currently not pro-poor, as this condition is more beneficial for skilled workers.

The increase of share in the non-agricultural sector, on the other hand, provides an increase in income. Nevertheless, this increase in income is followed by the income distribution gap. This result describes rural gap variety has a positive and significant influence on rural poverty. The increase in the rural gap will also increase the poverty rate. Based on the inter-island gap, provinces with a low gap in Sumatera island are Bangka Belitung and Sumatera Utara. Provinces in Java have a significantly high gap. Eastern Indonesia, especially Papua island, the two provinces on this island have a very high gap. In Sulawesi, almost all provinces have a high rural gap, except for Sulawesi Barat as seen in Figure 6.

Here, it becomes important that the income distribution gap in the rural community be reduced first as the requirement to reduce poverty. In other words, to reduce rural poverty, the gap needs to be first addressed. Nguyen, Ngoc and Van der Weide (2010) in their study in Vietnam found that almost all regions experienced drastic poverty reduction from 1999 to 2006, the significant decrease happened on regions with a low gap, and in reverse, insignificant poverty reduction happened in regions with the high-income gap.

If the Gini ratio were to be compared between the rural and urban Gini ratio, there is a tendency where the rural gap is lower than the urban gap. For instance, in 2017, the rural gap was 0.32, whereas the urban gap was 0.40. The income distribution gap in the rural area is

relatively lower than the urban income distribution gap. However, the impact on poverty has the most reliable determinant. The government focus to solve the rural poverty problem should be started by improving the income distribution first. In order for land taxation (ownership) to be effective, it has to be progressively implemented. The target is to minimize land ownership in a particular group, which caused a gap in the rural area.

Meanwhile, economic growth usually is an important contributor for poverty reduction in developing countries (Cervantes-Godoy and Dewbre, 2010; Cao, Wang and Wang, 2009; Sriyana, 2018), and several other countries have proven that growth significantly influences poverty reduction. Nevertheless, the calculated economic growth variable, in fact, has no significant influence to reduce rural poverty reduction in Indonesia. This reveals that economic growth in many regions is not inclusive. Adam Jr. (2004), argued that economic growth does not necessarily reduce poverty; it depends on how economic growth was defined. When growth is defined from GDP per capita, then its growth elasticity toward poverty is minimal; however, when growth is calculated from average income (consumption), its elasticity toward poverty will be higher.

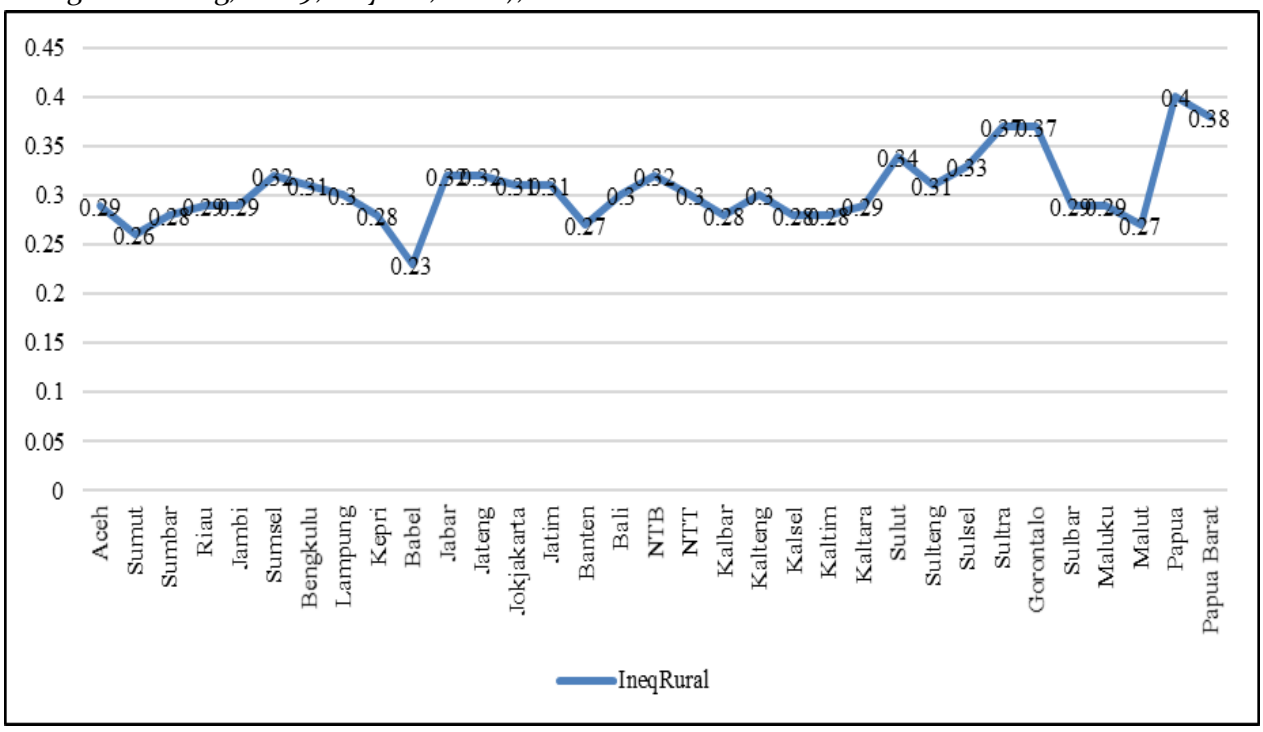

Figure 6. Rural Gap Per Province in Indonesia, 2017

Source: Data Processing Result, 2019.

Sectorial growth based on jobs, as in the agricultural sector shows a significant result and has a negative correlation. If the agricultural sector constantly grows each year, it provides an effect on the reduction of rural poverty rate in Indonesia. The decrease of the rural poverty rate is strongly linked with the growth of agricultural output, which supported by labors' productivity (de Janvry and Sadoulet, 2010). This means that growth in the agricultural sector is essential to be combined with other aspects such as productivity, farmers' income itself, and social aspect (Dewbre, Cervantes-Godoy, and Sorescu, 2011). This implies that regardless to the fact that agricultural growth in rural area still plays an

important role in poverty reduction, the policy that enables strong growth in the services sector in rural and urban areas would accelerate the poverty reduction (Surjadi, Surjadarma, and Sumarto, 2009).

The growth in the agricultural sector cannot be implemented by itself. It has to be synergized with other programs, including the increase of labors productivity in rural areas. Labors productivity could be increased through the improvement of education quality and healthcare. It is almost general in all provinces in Indonesia that accessibility toward secondary education is yet equally distributed; the school facilities and infrastructure in urban and rural areas have significant gaps. Another problem is that the teacher and student ratio in secondary schools in rural areas are high. It means that the number of teachers in rural areas to provide services for a large number of students in this area is limited. Even, as teachers in a rural area are very few, they are forced to teach outside their competencies. Similarly, in the health sector, the service provided are yet optimized, as the distance to healthcare facilities are far away, and in certain areas healthcare facilities are not available.

Aside from productivity problem, the synergy between agricultural sector growth and empowerment activities by utilizing the Village Fund is also important to be carried out to accelerate rural poverty reduction. Village fund utilization is essential to mobilize productive economic activities in services and trading sectors, as well as the development of the small and medium industry for additional income for the community. The small scale industry, services, and trades need to be adapted to the current development of information technology.

The growing agricultural financing sector, the growing share of the agricultural sector, the better income distribution gap in a rural area than in urban area, stable economy, and sustainable growth in the agricultural sector are indicators for agricultural sector performance in this study cannot guarantee the improvement of farmers' welfare. Other factors can inhibit the poverty reduction such as inflation and farmers exchange rate (NTP). Nevertheless, the estimation result showed that inflation variable has no effect on poverty reduction, regardless of the good curb inflation in the regions. This finding is in contrast with previous research that inflation can influence rural poverty (Son and Kakwani, 2009; Supriyadi and Kausar, 2017). Similarly, NTP also does not influence poverty reduction. In other words, there are factors outside the farmers' welfare, which was measured from inflation that have an important role in rural poverty reduction (Jayadi, 2012).

CONCLUSION

Based on the analysis and discussion, the following conclusions are reached from this study: 1) Public sector expenditure in the agricultural sector in Indonesia has no influence on poverty reduction during the period of the study. It is possible that the agricultural sector financing from National Budget and Local Budget was inappropriately on target as the designed programs were not based on the existence of farmers who do not own their land, as one condition to receive the production input assistance was land ownership. 2) Share or contribution of the agricultural sector is generally high; however, this variable tends to encourage the improvement of rural poverty. This was because the added value of agricultural products was very low, the price of the agricultural commodity was low, and in the international market, the price was depressed during the research period. 3) Rural gap has a strong influence on rural poverty. The gap happens as most of the farmers are not

landowners, thus, their income was low. Meanwhile, the number of farmers who are also landowners were limited, they are also supported by income from non-agricultural sector, which leads to the wealth being concentrated into certain people in the village. Village gap is the most dominant factor, and elasticity is the largest to influence rural poverty in Indonesia. 4) Economic growth variable does not influence poverty reduction. This was because the economic growth was not inclusive, and the sector that drives the economic growth in the region is usually non-trade able sector. 5) Agricultural economic growth influences rural poverty reduction in Indonesia during the period of study. Therefore, agricultural policy needs to be supported by focusing on strengthening the program for the non-agricultural sector to reduce rural poverty. 6) Inflation and NTP (farmer's exchange rate) as indicators to measure the level of welfare do not influence rural poverty reduction. This was due to the fact that regardless of the well-curb inflation and increasing NTP, farmers could not fully harvest the result as agricultural products were mostly sold using a middle man. The input production cost was high, such as pesticide, fertilizer, and production facilities, all of which usually converted into debt, and the payment was during harvesting time.

The analysis and the conclusion clearly describe that there are several problems in the agricultural sector that needs to be addressed as in the following: 1) Agricultural sector financing from the State budget/Local Budget has no influence on poverty reduction. Therefore, local government should improve and design programs in the agricultural sector, including carrying out a thorough evaluation on currently implemented agricultural programs. It is also important that the local government carry out the promotion of activities outside the agricultural sector to the rural community for them to have activities outside the agricultural sector. 2) It is essential to support the agricultural products to be further processed for additional economic values, as in fact, the increase of share in the agricultural sector tends to increase poverty because of farmers as a price taker and has no bargaining power to determine the price of agricultural products. There is also a need to strengthen the farmer's institution for them to have a better bargaining position with the money lender or middlemen. 3) The gap in a rural area has made it harder for poverty reduction as land ownership concentration happened. Therefore, redistribution of land by implementing progressive tax for extensive landownership is needed to replace them based on the object price tax system, and support the shift of labor structure to the non-agricultural sector. 4) Growth has no correlation on poverty reduction in Indonesia due to the source of growth that is more varied, which supported by the sectors that have less contribution to the agricultural sector. In correlation with this, development program needs to be strengthened in rural areas by optimizing Village Fund and other funding from the local budget, especially in rural infrastructure development and basic services, such as education and healthcare. 5) Growth in the agricultural sector needs to be supported along with the strengthening of other potential sectors in the region. It should not only focus on the food sector but also on the sub-plantation sector, poultry, and fisheries that cannot be quickly intervened by temperature. 6) Farmer's dependency on non-organic fertilizer is high. Meanwhile, distribution of non-organic fertilizer is limited by the government, and even it is available, the price in the market is not subsidized. Similarly, production facilities are rented and compensated as debt, which should be paid during harvest time. Finally, farmers input production cost increased. Hence, the

increase of NTP (farmer's exchange rate) is not enjoyed by farmers. Thus, to reduce the production cost, the extension workers and related agricultural agencies should support the utilization of organic fertilizers.

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